REDUCING THE VARIABILITY OF SUPERVISORS' JUDGMENTS

AN EXPERIMENTAL STUDY

A DISSERTATION

SUBMITTED TO THE BOARD OF UNIVERSITY STUDIES OF THE JOHNS HOPKINS UNIVERSITY IN CONFORMITY WITH THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF EDUCATION

1933

BY

SISTER M. XAVIER HIGGINS, R. S. M.

(Reprinted from "The Johns Hopkins University Studies in Education," Number 23)

BALTIMORE

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TABLE OF CONTENTS

PAGE

TABLES ix

CHAPTER

I. THE PROBLEM 1

The Purpose of the Study.

Need for this Investigation.

II. THE EXPERIMENT 5

Instructions.

The Silent Motion Picture, a Medium for the Reproduction of the Teaching-Learning Act.

The Analysis Chart.

The Use of Pupil Progress as a Criterion in Measuring Skill in Teaching.

The Rating of a Lesson Based on Progress in Pupils as a Result of a Teaching Performance.

III. INTERPRETATION OF DATA AND RESULTS

SECTION I 14

The Effect of Practice in Observing the Same Learning Situation on the Variability of Supervisors' Ratings of the Lesson. (Group A)

The Effect of Practice, Observation of Different Learning Situations and of the Use of a List of Factors on the Variability of Supervisors' Ratings of the Lesson. (Group D)

The Effect of Practice, Observation and Two Uses of List on the Variability of Supervisors' Ratings of the Lesson. (Group C)

The Effect of Practice, Observation, One Use of the List, and One Use of the Chart on the Variability of Supervisors' Ratings of the Lesson. (Group B)

The Effect of Practice, Observation, Two Uses of the List, and One of the Chart on the Variability of Supervisors' Ratings of the Lesson. (Group F)

The Effect of Practice, Observation, One Use of the List, and Two Uses of the Chart on the Variability of Supervisors' Ratings of the Lesson. (Group E)

The Effect of Practice, Observation, and Three Uses of the Chart on the Variability of Supervisors' Ratings of the Lesson. (Group G)

PAGE

SECTION II 31

Effect of One Use of the Chart.
The Effect of Two Uses of the Chart.
Effect of Second Use of the Chart Over and Above the First Use.
Summary.
The Effect of One Use of the List.
The Effect of Two Uses of the List.
Effect of the Second Use of the List Over and Above the First Use.
Summary.
The Effect of One Observation.
The Effect of Two Observations.
Summary.
The Effect of Practice.
Summary.
Conclusions.

SECTION III 38

The Effect of the Use of the Chart.

SECTION IV 42

Summary.
Conclusions.

IV. BIBLIOGRAPHY 44

V. LEARNING SITUATION 46

VI. APPENDIX 53

Stenographic Reports of the Lessons Used in the Four Films.

INDEX 69

VITA 71

TABLES

TABLE		PAGE
I.	The First Rating of the Seventy Judges of the Experimental Film—Arithmetic	14
II.	The Ratings by Group A (Control Group) on the Experimental Film	15
III.	The Ratings by Group D on the Experimental Film	15
IV.	The Ratings by Group D on the Three Practice Films	16
V.	The Ratings by Group C on the Experimental Film	17
VI.	The Ratings by Group C on Practice Films	18
VII.	The Ratings by Group B on the Experimental Film	19
VIII.	The Ratings by Group B on the Practice Films	20
IX.	The Ratings by Group F on the Experimental Film	21
X.	The Ratings by Group F on the Practice Films	22
XI.	The Ratings by Group E on the Experimental Film	23
XII.	The Ratings by Group E on Practice Films	24
XIII.	The Ratings by Group G on the Experimental Film	25
XIV.	The Ratings by Group G on Practice Films	26
XV.	The Combined Effect of Practice, Observation, List of Factors, and an Analysis Chart on Supervisors' Ratings of the Experimental Film	27
XVI.	The Effect of Different Procedures on the Variability of the Ratings of the Experimental Film by the Seven Groups of Supervisors as Measured by the Standard Deviation	33
XVII.	Ratings of Forty-five Judges Determined by Pupil Progress	38
XVIII.	A Comparison of the Ratings of the Arithmetic Lesson by the Seventy Supervisors Showing the Influence of the Different Supervisory Techniques with the "Established Measure" of the Worth of the Lesson....facing	38
XIX.	The Effect of the Use of the Chart in Producing a Closer Approach to "the Established Measure" of the Value of the Lesson	39
XX.	The Effect of the Use of the List in Producing a Closer Approach to "the Established Measure" of the Value of the Lesson	40
XXI.	The Effect of Observation and Practice in Securing a Closer Approach to "the Established Measure" of the Value of the Lesson	41

CHAPTER I

The Problem

The problem here presented lies in the field of supervision and is based on the following assumptions:

1. Where supervisors are engaged in passing judgments on the teaching-learning act, there is often manifested a lack of unanimity of opinion.
2. It is possible to secure agreement in supervisory judgments of the value of the learning situation by the use of certain supervisory techniques.

The Purpose of the Study

The purpose of the study is not to present a new device for rating teacher efficiency, but to discover the influence of certain selected measures on the variability of supervisors' evaluations of lessons, and to determine experimentally which kind of measure tends to make a group of supervisors more alike or more different in their evaluations of a given classroom situation.

There has been a considerable amount of material produced since the beginning of the century in the field of teacher measurement. Since this study, however, is not concerned with evaluating the numerous types of rating devices, it was not considered necessary to review this literature or to trace the historical development of the movement.[1]

An analysis of the literature[2] reveals how limited is the number of experimental studies that seek to evaluate the relative effectiveness of the different techniques in observation as used by supervisors. It also discloses the fact that

[1] Brim, Orville G., "Surveys of Instruction," *Journal of Educational Method*, VII (June 1928), 390-397.
Knudsen, Charles W. and Stephens, Stella, "An Analysis of Fifty-seven Devices for rating Teachers (With Bibliography)," *Peabody Journal of Education*, 9 (July 1931), 15-24.

[2] Barr, A. S., *An Introduction to the Scientific Study of Classroom Supervision*. New York: Appleton, 1931. Pp. 399.

the investigators[3] were primarily concerned with the construction of the particular device and the mode of establishing its validity and reliability.

In other studies, the investigators have computed correlations between the ratings of teacher efficiency as measured by the use of a particular instrument and other criteria,[4] such as scholarship, teaching experience, intelligence, photograph, and interview.

In a few theses,[5] the experimenters have set up experimental and control groups, for the purpose of discovering the degree of relationship existing between supervisors' ratings of teaching success and the changes produced in the pupils as a result of the learning act.

To locate a published investigation in which the use of the rating device is treated as the variable in an experimentally controlled situation seems difficult. In the "Evaluation of Supervision," the Fourth Yearbook of the Supervisors and Directors of Instruction (1931), the committee states "that the review of literature and of studies reported, revealed a paucity of investigations, in which the results from equivalent groups having or not having supervision were compared." This same study emphasizes the fact that there are no experimental studies which show the relative effects of various combinations of supervisory techniques, or the order of their use.

[3] Almy, H. C. and Sorenson, Herbert, "A Teacher-Rating Scale of Determined Reliability and Validity," *Educational Administration and Supervision*, 16 (March 1930), 179-186.

Torgerson, T. L., *Manual for Torgerson Diagnostic Teacher Rating Scale of Instructional Activities.* Bloomington, Illinois: Public School Publishing Co., 1930.

[4] Corey, Stephen M., "The Present State of Ignorance about Factors Effecting Teacher Success," *Educational Administration and Supervision*, XVIII (October 1932), 481-490.

Tiegs, Ernest W., *An Evaluation of Some Techniques of Teacher Selection.* Bloomington, Illinois: Public School Publishing Co., 1928.

[5] Coy, Genevieve L., "A Study of Various Factors which Influence the Use of the Accomplishment Quotient as a Measure of Teaching Efficiency," *Journal of Educational Research*, 21 (January 1930), 29-42.

Crabbs, Lelah Mae, "Measuring Efficiency in Supervision and Teaching," Contributions to Education, No. 175. New York: Teachers College, Columbia University, 1925.

The authors of another article [6] reported that "the one group experimental procedure was used, the variable being supervision. The effect of supervision was measured, as indicated above, by measuring pupil progress in both phases of arithmetic in terms of gain made without supervision, and with supervision of one but not the other aspect, using both normal and actual gain as bases of comparison."

However, in the interpretation of the data, the following statement is made: "The inexactness regarding certain variables and the small number of children render impossible the derivation of conclusive results."

Need for this Investigation

Educators have long been concerned over the lack of agreement among supervisors in their estimates of the important characteristics of teaching. In discussing this lack of agreement among supervisors Barr reports an investigation [7] conducted by him which is typical of the situation.

> The writer secured for this study the assistance of about sixty supervisors to observe two thirty-minute recitations in arithmetic. . . . The problem presented to this group of supervisors was one of correctly analyzing a teaching situation about which they had no advance information. Each supervisor was supplied with a form containing twelve items more or less typical of those used in conventual classroom supervision. These supervisors were directed to study the teacher's work and evaluate her performance for each of the twelve items on a ten point scale. . . . The important fact to note is that we have in this study, 60 supervisors, all observing the same teacher at the same time under the same conditions. . . . In 14 of the 26 ratings these supervisors spread their ratings over the entire ten point scale; in 11 instances their ratings covered nine points; and in only one instance did they show any agreement whatsoever. For general merit, 13 of these supervisors rated this teacher as superior (second observation), while 13 other supervisors rated this same teacher as very poor. . . . These 60 supervisors observed, as has been stated, two recitations. These recitations were conducted in such a manner as to be approximately of equal quality. The ratings for the two observations were treated as pairs of scores, from which the

---

[6] Smith, Ethel E. and Burton, Wm. H., "The Effect upon Pupil Achievement in Arithmetic Computation of a Supervisory Program Emphasizing Computation," *Educational Method*, XII (February 1933), 267-271.

[7] Barr, A. S., *An Introduction to the Scientific Study of Classroom Supervision.*" Chapter V, Pages 193-198.

coefficients of correlation were calculated for each of the twelve items that composed the recitations score card used in this demonstration. The average coefficient of correlation is approximately .30.

From this brief summary of previous investigations, it seems evident that there is an urgent and immediate need for experimental studies which justify the prevailing unscientific assumptions concerning supervisory plans and techniques.

CHAPTER II

The Experiment

This chapter will describe the experimental plan and the materials used in working out the experiment.

Seventy supervisors were asked to assist in the experiment. All of the supervisors had the minimum of three years' experience as principal, supervisor or heads of departments; the majority had followed at least one course in supervision.

Before the experiment was inaugurated, instruction sheets were given to each of the supervisors. The following is a copy of the blank:

Instructions

On this sheet you are asked to give certain ratings of the lesson you will observe on the screen. No personal use will be made of your ratings; they will be used in a study to determine the value of certain procedures in supervision. Do not be disturbed because you think the lesson should be rated low or high or because you wish to change your ratings as the experiment proceeds; the important thing is that the rating you give, represents your estimate, of the lesson. Use the following code in rating the lesson:

1. Inferior
2. Below average
3. Average
4. Above average
5. Superior

Four meetings of the supervisors were held while the experiment was in progress. At the first meeting, the seventy supervisors observed and rated the arithmetic film according to the directions on the instruction sheet.

Using the mean of the ratings as a measure of the central tendency and the standard deviation as a measure of "scatter," the seventy judges were then divided into seven groups of ten each. The sections were designated A, B, C, D, E, F, G; A being the control group and the others constituting six experimental groups.

Before the next meeting was called, the list of factors was given to Groups E and F and the chart was given to Group G in order that the supervisors might become acquainted with these techniques. Three days after the first meeting, a second film, a reading lesson, was observed and rated by the the six experimental groups. Groups B, C, and D observed only; Groups E and F observed and used the list; Group G, observed, used list and chart. At this same meeting, the

groups observed and again rated the arithmetic lesson. Group A, the control group, which had not observed the reading lesson, reported at the meeting in time to observe and rate the arithmetic lesson. At the close of this meeting, the six experimental groups were informed of the work of the next meeting. The list of factors was given to Groups B and C; Group E received the chart.

Three days later, at the third meeting, a civics film was used for the practice work with the six experimental groups Group D observed the lesson; Groups B, C, and F observed and used the list; Groups E and G observed, used the list and the chart. Group A reported at the meeting after the observation of the geography film was completed. The groups observed and rated the arithmetic lesson, using the same code as at the first and second meetings. The supervisors were again informed of the work of the next meeting. Groups B and F were given the chart; D received the list.

When the supervisors in the six experimental groups met for the fourth time, three days after the previous meeting, they observed a geography film. Groups C and D observed and used the list and Groups B, E, F, and G observed, used the list and the chart. Group A reported to the meeting and all seven groups again rated the arithmetic lesson.

Diagram 1 sets forth the steps in the experiment and the varying observational procedures of the supervisory groups. This organization was adopted in order to control the variables which might operate against the validity of the results. While the groups were sectioned on the basis of the mean and the standard deviation, it could not be assumed that the groups were equivalent if any other criteria were used. Because it was not possible to make the assumption that the films were equal and since three practice films were used, the difference in the films became a variable factor. The above outlined experimental set-up of observational procedures was planned in order that a rotation technique of observation might care for the factor of variability in the film. By means of this experimental set-up it was also possible to study the influence of each of the different observational techniques on the variability of the ratings.

DIAGRAM 1

THE SEVEN STEPS IN THE EXPERIMENTAL PROCEDURE
OBSERVATIONAL PROCEDURES OF SUPERVISORY GROUPS

STEPS							
I	Seventy supervisors observed and gave rating to film I*.						
	Control Group	Experimental Groups					
	A	B	C	D	E	F	G
II	No activity	Observed and rated film II			Used list; rated film II		Used chart; rated film II
III	Seven groups (seventy supervisors) gave second rating to film I showing effect of step II						
	Control Group	Experimental Groups					
	A	B	C	D	E	F	G
IV	No activity	Used list; rated film III		Observed rated film III	Used chart; rated film III	Used chart; rated film III	Used chart; rated film III
V	Seven groups observed, gave third rating of film I showing effect of step IV						
	A	B	C	D	E	F	G
VI	No activity	Used chart; rated film IV	Used list; rated film IV	Used list; rated film IV	Used chart; rated film IV	Used chart; rated film IV	Used chart; rated film IV
VII	Seven groups gave forty rating to film I showing effect of step VI						

*Legend
Film one: Arithmetic lesson; the experimental film
Film two: Reading lesson
Film three: Civics lesson
Film four: Geography lesson

The Silent Motion Picture, A Medium for the Reproduction of the Teaching-Learning Act

In this experiment, the ratings of the supervisors were made, not on actual classroom teaching but on silent motion pictures and stenographic reproductions of the teacher-pupil activities in an actual classroom lesson. Four films, each five hundred feet long and sixteen millimeters wide, were used.

The four different films showed lessons in the various fields of arithmetic, reading, civics, and geography. In the films the same group of pupils of seventh grade level under the guidance of four different teachers were observed.

The limitations in the use of films and stenographic reports instead of the real teaching situation are here acknowledged. At the same time some means had to be found for the exact reproduction of each teacher-pupil procedure used in this study. The experimental set-up of variables and controls required that the same teaching activities be seen again and again by the supervisors. Through the use of films and stenographic reports, such reproduction can be given without deviation in procedure and can be used for experiments with varying types of critical analysis and evaluation by observers. It thus becomes possible to discuss the identical classroom procedures with the same or different judges as frequently as the problem at hand demands.

The Analysis Chart

The problem involved in the construction of the chart was three-fold: first, to select and describe the items to be used as a basis for the chart; secondly, to analyze these factors into five distinct levels; and thirdly, to establish the validity of the technique adopted.

In the building up of the analysis chart, it was assumed that the opinion of educators,[1] research students and other

[1] Bamberger, Florence, "A Survey of Observable, Improvable Char-

experienced workers[2] in the field of education and psychology was a valid source from which to select the principles which serve as a foundation for the different levels of the factors.

The factors which were selected are here listed:

1. Preparation
2. Sensitivity to Pupil Difficulties
3. Guidance of Pupil Difficulty
4. Use of the Vernacular — The Teaching-
5. Pupil-Teacher Relationships — Learning Act
6. Control Technique
7. Outcomes

No attempt was made to weigh the factors or the five levels of the factors, because there is no evidence available concerning the relative or ultimate importance of the different items. Moreover, since the chart is intended to assist the supervisor and teacher to analyze classroom situations and as the purpose of the study is to determine experimentally the use of this particular type of chart, it seemed possible to realize both aims without any determination of the value of the five different levels of the seven factors.

Since the validity of any supervisory device can only be established by its use, it becomes necessary to state at this point, that the data gathered in the experimental part of the study (Chapter III) justifies the claims made for the use of the above mentioned criteria in the formation of the analysis chart.

acteristics Which Evidence Skill in Teaching," *Elementary School Journal*, 28 (November 1927), 181-185.

Brueckner, Leo J., "A Chart for Analyzing the Teaching of Arithmetic," *Journal of Educational Method*, IX (December 1929), 130-137.

Courtis, S. A., "Surveys of Teaching Types and Skills," Second Yearbook, National Conference of Supervisors and Directors of Instruction. New York: Teachers College, Columbia University, 1929.

[2] Freyd, Max, "The Graphic Rating Scale," *Journal of Educational Psychology*, 14 (February 1923), 83-102.

THE CHART SHOWS THE FIVE LEVELS OF EACH OF THE SEVEN FACTORS

An Analysis Chart for Evaluating Some Observable Factors in the Teaching-Learning Act

FACTORS	INFERIOR 1	BELOW AVERAGE 2	AVERAGE 3	ABOVE AVERAGE 4	SUPERIOR 5	EVALUATION
A. Is there evidence of a definite and carefully planned procedure for directing learning?	An indefinite procedure for providing necessary information and material.	A definite usable plan for providing only necessary information and material.	A definite, usable plan for providing necessary and supplementary information and materials.	A definite plan to achieve desirable, attainable goals.	A definite, highly flexible plan to achieve desirable, attainable goals, and to investigate pupil needs and abilities.	*1 2 3 4 5* *No opportunity to observe*
B. Does the teacher locate quickly and correctly the necessary point of contact with the learner?	Insensitive to individual or group difficulties.	Senses the group difficulties only.	Senses the group and also individual difficulties.	Senses the specific pupil difficulty of group and also of the individual.	Anticipates specific pupil difficulties through evaluation of previous pupil responses.	*1 2 3 4 5* *No opportunity to observe*
C. Does the teacher guide the learner in the solution of the difficulty?	Neglects both the individual and group difficulties.	Revises procedure on basis of group difficulties.	Revises procedure on basis of both individual and group difficulties.	Provides remedial work to aid in the solution of specific pupil difficulties.	Guides pupils in thinking ways and means to solve their own specific difficulties.	*1 2 3 4 5* *No opportunity to observe*
D. Is there evidence of desirable teacher-pupil relationships?	Absence of desirable teacher-pupil relationships.	Desirable teacher-pupil relationships present in a slight degree.	Desirable teacher-pupil relationship present in a moderate degree.	Desirable teacher-pupil relationships present in a considerable degree.	Desirable teacher-pupil relationship present in a marked degree.	*1 2 3 4 5* *No opportunity to observe*
E. Is there skill in the use of the vernacular?	Inaccurate in speech, or indistinct in enunciation.	Speaks correctly and distinctly, but without animation.	Speaks correctly, distinctly, and forcefully.	Speaks correctly, distinctly, with color and force.	Speaks fluently with precision, color, force, and simplicity.	*1 2 3 4 5* *No opportunity to observe*
F. Is there an established control technique?	Mechanical details overemphasized or totally neglected. No pupil initiative. Pupil initiative not balanced by social responsibility.	Mechanical details handled efficiently by teacher. Limited pupil initiative, but balanced by social discipline.	Mechanical details under teacher guidance but pupil control. Marked pupil initiative balanced by social discipline.	Mechanical details under pupil guidance and pupil control. Pupil initiative and responsiveness in efficient group work.	Mechanical details under efficient pupil guidance and pupil control. Pupil initiative and control in group work.	*1 2 3 4 5* *No opportunity to observe*
G. Is there evidence of pupil growth toward desirable and attainable goals?	Evidence of pupil growth in the acquisition of necessary information.	Evidence of pupil growth in the acquisition of necessary and supplementary information.	Evidence of pupil growth in the ability to secure and to organize materials while acquiring information.	Evidence of pupil growth in analyzing problems and in locating and utilizing materials in solving problems.	Evidence of pupil growth in originating and interpreting problems and in utilizing learned techniques in new situations.	*1 2 3 4 5* *No opportunity to observe*

By SISTER M. XAVIER, R. S. M.

The Use of Pupil Progress as a Criterion in Measuring Skill in Teaching

While it is desirable to discover a device which will make supervisors agree more closely in their judgments of a particular classroom situation, there is an important fact that must be considered if the tool is to be of value to supervisors and teachers. In reducing the variability of the supervisors' judgments, the device should also tend to promote a closer agreement with a reliable measure which establishes the worth of the teaching performance. Confidence will continue to be placed in supervision, the more reliable the criterion used to measure the worth of the teaching performance and the more closely supervisory judgments approach this measure.

The use of the pupil growth as a criterion by which to measure teacher success would be justified if it were possible to secure tests which measure adequately and consistently the results obtained in the different types of learning situations. In this study, the available test material by which it was possible to measure the pupil progress, determined the selection of the type of learning situation to be used as the experimental film.

The information concerning the status of the group of pupils used in the experiment was sent to forty-five principals, supervisors, and practice teachers. These judges were asked to rate the teaching performance and to base their judgments on the progress of the pupils, which was measured by the gains in the arithmetic test given before and after the lesson. These supervisors had no acquaintance with the teacher or her teaching ability; the ratings were determined entirely by the data given on the blank. A copy of the information sheet is here given:

The Rating of a Lesson Based on Progress in Pupils as a Result of a Teaching Performance

Two different forms of Problems Analysis Test by P. R. Stevenson were given to a seventh grade. The day after the administration of form one of the test, a problem solving

lesson in arithmetic was taught to the class; Form two of the test was given the day following the lesson.

INFORMATION CONCERNING CLASS

Level: Seventh Grade Enrollment: 25 Pupils

Average (mean) mental age	13-5
Average (mean) I Q	104
Median-mental age	13-2
Median-I Q	101
Score made by class on pre-test (Form I) (Median)	10.16
Score made by class on re-test (Form II) (Median)	20.83
Length of time—in class	45 minutes
Home assignment	30 minutes
Total gains made by class	46
Average gains	1.84

1 pupil whose I Q is below 90 gained 1 point
18 pupils whose I Q range between 90 and 110 gained 2.4 points
6 pupils whose I Q are over 110 gained .16 points.

STANDARDS (Based on median scores)

Standard score—based on medians—Form I 16.4
Standard score—based on medians—Form II 17.4
The average mental age for seventh grade is between 12 and 13 years.

RESULTS OF PROBLEM ANALYSIS ARITHMETIC (Test II) FORMS I AND II—P. R. STEVENSON (PUBLIC SCHOOL PUBLISHING CO.)

Pupils (Code)	Form I	Form II	Gains	Reading Age*	Arithmetic Age*	C. A.	M. A.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	19	18	-1	14-10	13-5	12-6	13-9
2	20	19	-1	15-9	16-7	13-1	13-2
3	16	19	3	17-1	14-2	13-0	12-8
4	20	23	3	16-11	17-5	12-9	13-7
5	18	20	2	14-3	15-2	12-10	13-2
6	18	22	4	13-4	14-3	13-5	13-6
7	13	16	3	12-6	11-8	13-9	13-2
8	20	21	1	16-1	17-1	12-6	15-5
9	19	21	2	18-1	18-6	12-11	15-10
10	13	20	7	12-11	12-9	13-1	12-8
11	11	19	8	12-1	13-2	12-10	12-10
12	16	17	1	15-1	12-9	13-1	12-6
13	19	24	5	16-1	14-11	12-1	12-9
14	21	23	2	14-2	16-5	12-1	14-4
15	20	16	-4	13-4	13-2	12-2	13-4
16	10	11	1	13-2	13-5	13-4	11-7
17	12	13	1	12-6	12-6	13-6	13-8
18	22	21	-1	16-3	12-9	12-8	13-0
19	24	21	-3	14-8	16-2	12-7	15-1
20	21	23	2	15-10	14-11	12-4	12-10
21	21	21	0	12-8	17-10	13-3	14-11
22	18	20	2	14-9	10-11	12-11	12-10
23	18	23	5	11-9	15-11	12-10	13-4
24	20	21	1	10-4	14-0	12-6	12-8
25	16	19	3	14-8	12-0	13-6	13-4
Median	19.16	20.83	-10				
			56				
Total number of points gained in Re-Test			46				

* Based on the New Stanford Achievement Test.

The difference in the class medians on the two forms of the test is 1.67; the difference in the median scores given as the standards for Form I and II is 1 point. It must be remembered, however, that while the class gained 1.67 points after a lesson of forty-five minutes, this type of teaching performance would occur only five times during the semester. The lesson was based on a special technique-problem analysis; the application of this technique was used daily during the semester.

Please draw a circle around the number which represents your judgment of the lesson.

1. Inferior
2. Below average
3. Average
4. Above average
5. Superior

The standard deviation was used as the measure of variability.

CHAPTER III

Interpretation of Data and Results

This chapter is divided into four sections. In the first section, the combined effect of the different supervisory techniques which were used by each of the seven groups of supervisors are briefly described.

In the second section, the experimental results will be treated under another aspect. The effect of each of the supervisory techniques will be studied. This is the more important treatment of the data, because the purpose of the study is to discover the influence of certain selected procedures on supervisors' judgments of classroom situations.

The third section will give a comparison of the supervisory ratings of the lesson which were determined by the different techniques with a reliable criterion which established the value of the lesson. The general conclusions are given in the last section.

SECTION I

TABLE I

The First Rating of the Seventy Judges of the Experimental Film—Arithmetic

	Superior	Above Average	Average	Below Average	Inferior
	(5)	(4)	(3)	(2)	(1)
Number of Judges	14	14	28	14	0
Percent of Judges	20	20	40	20	0

TABLE II

THE RATINGS BY GROUP A (CONTROL GROUP) ON THE EXPERIMENTAL FILM (ARITHMETIC)

Supervisors	First Rating	Second Rating	Third Rating	Fourth Rating
10	5	4	4	4
11	5	5	5	5
12	4	4	4	4
13	3	4	4	4
14	4	3	3	3
15	3	4	4	4
16	3	3	3	3
17	3	2	2	2
18	2	3	3	3
19	2	2	2	2
Mean	3.4	3.4	3.4	3.4
S. D.	1.02	.92	.92	.92
Total Range	2-5	2-5	2-5	2-5
P. E. (mean)	.22	.19	.19	.19
P. E. (s. d.)	.15	.14	.14	.14
Q_3	4.75	4.63	4.63	4.63
Q_1	3.13	3.17	3.17	3.17
Q	.81	.73	.73	.73

TABLE III

THE RATINGS BY GROUP D ON THE EXPERIMENTAL FILM (ARITHMETIC)

Supervisors	First Rating	Second Rating	Third Rating	Fourth Rating
	Observed Film II*	Observed Film III*		Observed Film IV using List of Factors*
40	3	3	3	3
41	2	2	3	3
42	5	4	4	5
43	3	3	4	4
44	3	3	2	3
45	5	3	3	2
46	2	2	2	3
47	4	4	3	2
48	3	3	4	3
49	4	5	5	4
Mean	3.4	3.2	3.3	3.2
S. D.	1.02	.87	.90	.87
Total Range	2-5	2-5	2-5	2-5
P. E. (mean)	.22	.19	.19	.19
P. E. (s. d.)	.15	.13	.13	.13
Q_3	4.75	4.25	4.50	4.25
Q_1	3.13	3.10	3.13	3.10
Q	.81	.58	.69	.58

*For ratings given by this group on practice films see Table IV.

TABLE IV

THE RATINGS BY GROUP D ON THE THREE PRACTICE FILMS

Supervisors	Reading (Observation)	Civics (Observation)	Geography (List—Seven Factors)							
			a	b	c	d	e	f	g	
40	5	3	5	2	3	2	2	3	3	2.8
41	3	2	4	2	3	4	3	4	3	3.2
42	5	4	3	3	3	3	2	5	4	3.2
43	4	2	4	3	2	2	1	2	3	2.4
44	4	3	3	4	3	5	3	3	3	3.4
45	3	1	4	3	2	2	4	4	5	3.4
46	2	3	3	3	3	3	3	3	2	2.8
47	3	4	5	3	2	3	3	2	3	3.0
48	3	2	4	3	3	4	4	2	4	3.8
49	5	1	2	3	3	2	3	5	2	2.5
Mean	3.7	2.5	3.7	2.9	2.7	3.0	2.8	3.3	3.2	3.05
S. D.	1.00	1.02								.68
Total Range	2-5	1-4								2.4-3.8
P. E. (mean)	.21	.22								.09
P. E. (s. d.)	.15	.15								.06
Q_3	5.17	3.83								3.43
Q_1	3.37	2.16								2.83
Q	.90	.83								.30

TABLE V

THE RATINGS BY GROUP C ON THE EXPERIMENTAL FILM (ARITHMETIC)

Supervisors	First Rating	Second Rating	Third Rating	Fourth Rating
	Observed Film II*	Observed Film III using List of Factors*	Observed Film IV using List of Factors*	
50	2	2	3	2
51	4	3	3	3
52	3	2	2	2
53	3	3	4	3
54	2	3	4	3
55	4	3	2	4
56	3	3	3	4
57	3	4	3	5
58	5	4	4	3
59	5	5	5	5
Mean	3.4	3.2	3.3	3.4
S. D.	1.02	.87	.90	1.02
Total Range	2-5	2-5	2-5	2-5
P. E. (mean)	.22	.19	.19	.22
P. E. (s. d.)	.15	.13	.13	.15
Q_3	4.75	4.25	4.50	4.75
Q_1	3.13	3.10	3.13	3.13
Q	.81	.58	.69	.81

*For ratings given by this group on practice films see Table VI.

TABLE VI

The Ratings by Group C on Practice Films

Supervisors	Reading Observation	Civics List—Seven Factors								Geography List—Seven Factors							
		a	b	c	d	e	f	g		a	b	c	d	e	f	g	
50	2	3	1	1	2	3	2	1	1.8	3	2	2	5	5	3	3	3.2
51	5	3	1	1	3	1	3	3	2.1	4	3	3	2	2	3	3	2.8
52	3	2	1	1	2	2	2	2	1.7	5	5	5	4	4	5	5	4.7
53	3	2	1	1	1	2	3	3	1.8	3	3	3	4	4	3	3	3.2
54	3	4	3	3	2	3	1	3	2.7	4	5	5	3	4	4	4	4.1
55	5	3	2	3	3	2	4	2	2.7	5	4	4	5	5	4	4	4.4
56	3	3	3	2	1	2	3	2	2.2	4	3	4	3	3	3	3	3.2
57	3	2	2	2	3	2	2	1	2.0	3	5	2	3	5	2	2	3.2
58	4	5	4	3	4	2	5	3	3.7	4	3	3	5	3	3	3	3.4
59	4	3	2	1	3	1	4	1	2.1	4	3	3	3	4	3	3	3.7
Mean	3.5	3.0	2.0	1.8	2.4	2.0	2.9	2.1	2.28	3.9	3.6	3.4	3.7	3.9	3.3	3.3	3.59
S. D.	.93								.58								.59
Total Range	2-5								1.7-3.7								2.8-4.7
P. E. (mean)	.20								.12								.12
P. E. (s. d.)	.14								.09								.09
Q_3	4.75								2.73								4.15
Q_1	3.30								1.88								3.23
Q	.70								.43								.46

TABLE VII

THE RATINGS BY GROUP B ON THE EXPERIMENTAL FILM (ARITHMETIC)

Supervisors	First Rating	Second Rating	Third Rating	Fourth Rating
	Observed Film II*	Observed Film III* using List of Factors*		Observed Film IV using Chart*
60	5	5	5	4
61	4	3	4	4
62	3	3	2	3
63	5	5	4	5
64	3	3	3	3
65	3	3	3	3
66	2	2	2	3
67	3	2	2	3
68	4	4	3	3
69	2	3	3	3
Mean	3.4	3.3	3.1	3.4
S. D.	1.02	1.00	.94	.64
Total Range	2-5	2-5	2-5	3-5
P. E. (mean)	.22	.22	.20	.14
P. E. (s. d.)	.15	.15	.14	.10
Q_3	4.75	4.50	4.25	4.25
Q_1	3.13	3.10	2.83	3.36
Q	.81	.70	.71	.46

* For ratings given by this group on practice films see Table VIII.

TABLE VIII

THE RATINGS BY GROUP B ON THE PRACTICE FILMS

Supervisors	Reading Observation Rating	Civics List—Seven Factors Ratings a	b	c	d	e	f	g		Geography Analysis Chart Ratings a	b	c	d	e	f	g	
60	5	2	3	2	2	3	2	2	2.1	3	–	–	4	3	3	3	3.2
61	5	3	3	3	2	2	3	3	2.7	3	–	–	4	3	2	2	2.8
62	4	2	3	3	3	2	3	3	2.5	4	3	3	4	3	3	3	3.2
63	4	2	3	2	3	1	2	2	2.1	4	3	3	–	3	3	4	3.3
64	3	3	2	3	2	3	2	3	2.2	4	2	–	3	2	3	3	2.8
65	3	3	1	3	2	3	2	3	2.4	4	3	2	3	4	4	3	3.2
66	2	3	3	3	2	2	2	3	2.5	2	2	2	4	3	4	–	2.8
67	3	2	2	2	3	2	2	3	2.2	3	2	–	3	4	3	3	3.0
68	3	2	1	1	1	2	1	2	1.4	4	4	3	4	2	3	4	3.4
69	2	1	1	1	2	1	3	1	1.4	3	3	3	4	3	4	3	3.2
Mean	3.4	2.3	2.2	2.3	2.2	2.1	2.2	2.5	2.15	3.4	2.8	2.7	3.6	3.0	3.2	3.1	3.09
S. D.	1.01								.42								.21
Range	2-5								1.4-2.7								2.8-3.4
P. E. (mean)	.21								.09								0.4
P. E. (s. d.)	.15								.06								0.3
Q_3	4.75								2.53								3.29
Q_1	3.13								2.13								2.88
Q	.81								.20								.21

TABLE IX

THE RATINGS BY GROUP F ON THE EXPERIMENTAL FILM (ARITHMETIC)

Supervisors	First Rating	Second Rating	Third Rating	Fourth Rating
	Observed Film II using List of Factors*	Observed Film III using List of Factors*		Observed Film IV using Chart*
70	5	5	4	3
71	5	4	5	4
72	3	3	2	3
73	4	2	3	2
74	3	3	2	4
75	3	3	3	4
76	2	2	3	3
77	3	2	4	3
78	2	4	4	3
79	4	4	4	3
Mean	3.4	3.2	3.4	3.2
S. D.	1.02	.97	.91	.60
Total Range	2-5	2-5	2-5	2-4
P. E. (mean)	.22	.21	.19	.13
P. E. (s. d.)	.15	.15	.14	.09
Q_3	4.75	4.50	4.63	4.17
Q_1	3.13	2.83	3.17	3.25
Q	.81	.84	.73	.46

* For ratings given by this group on practice films see Table X.

TABLE X

THE RATINGS BY GROUP F ON THE PRACTICE FILMS

Supervisors	Reading List—Seven Factors								Civics List—Seven Factors								Geography Analysis Chart							
	a	b	c	d	e	f	g		a	b	c	d	e	f	g		a	b	c	d	e	f	g	
70	4	5	5	3	5	5	3	4.2	3	1	1	4	3	3	1	2.2	4	3	–	4	4	3	2	3.3
71	3	5	5	5	4	5	5	4.5	2	1	1	5	4	3	3	2.7	4	3	–	3	3	4	3	3.6
72	4	4	4	3	5	4	4	4.0	3	2	2	2	3	1	2	2.1	4	2	2	3	3	3	3	2.8
73	5	5	5	4	5	5	4	4.7	3	2	3	5	3	3	3	3.1	3	2	2	4	3	3	3	2.8
74	5	5	5	4	4	3	4	4.2	2	1	1	3	3	4	3	2.5	4	–	–	3	3	4	3	3.4
75	3	4	3	4	5	3	3	3.5	1	2	1	1	1	1	1	1.2	4	3	–	3	3	3	3	3.1
76	2	3	2	3	4	2	2	2.5	1	2	2	3	2	3	1	2.0	3	2	2	4	4	3	3	3.0
77	3	3	3	4	4	5	5	3.8	3	3	3	4	1	2	2	2.5	3	3	–	3	3	3	2	2.8
78	5	4	4	4	5	5	5	4.5	3	2	2	3	2	3	3	2.5	3	3	2	3	3	2	3	2.7
79	2	2	2	3	4	3	3	2.7	1	2	2	1	1	2	2	1.5	4	3	2	4	3	3	3	3.1
Mean	3.7	4.0	3.8	3.7	4.5	4.0	3.8	3.86	2.2	1.8	1.8	3.1	2.3	2.5	2.1	2.23	3.6	2.7	2	3.4	3.2	3.1	2.8	3.06
S. D.								.71								.53								.28
Range								2.5-4.7								1.2-3.1								2.7-3.6
P. E. (mean)								.15								.11								.06
P. E. (s. d.)								.11								.08								.04
Q_3								4.53								2.58								3.35
Q_1								3.55								2.05								2.85
Q								.49								.27								.25

TABLE XI

The Ratings by Group E on the Experimental Film (Arithmetic)

Supervisors	First Rating	Second Rating	Third Rating	Fourth Rating
	Observed Film II using List of Factors*	Observed Film III using Chart*	Observed Film IV using Chart*	
30	5	4	4	5
31	4	4	4	4
32	5	5	4	3
33	2	2	3	3
34	4	3	3	3
35	3	3	3	3
36	2	2	3	4
37	3	2	3	3
38	3	3	3	3
39	3	3	2	3
Mean	3.4	3.1	3.2	3.4
S. D.	1.02	.94	.60	.64
Total Range	2-5	2-5	2-4	3-5
P. E. (mean)	.22	.20	.13	.14
P. E. (s. d.)	.15	.14	.09	.10
Q_3	4.75	4.25	4.17	4.25
Q_1	3.13	2.83	3.25	3.36
Q	.81	.71	.46	.46

*For ratings given by this group on practice films see Table XII.

TABLE XII

THE RATINGS BY GROUP E ON THE PRACTICE FILMS

Supervisors	Reading List—Seven Factors								Civics Analysis Chart								Geography Analysis Chart							
	a	b	c	d	e	f	g		a	b	c	d	e	f	g		a	b	c	d	e	f	g	
30	4	4	4	5	5	4	4	4.2	2	2	2	3	3	3	2	2.4	4	3	3	4	3	5	5	3.8
31	4	5	5	5	5	5	3	4.5	3	3	2	2	2	3	2	3.0	4	2	2	4	3	3	4	3.1
32	5	4	5	4	5	4	4	4.4	3	2	1	3	2	2	2	2.1	3	–	–	3	4	4	3	3.4
33	4	5	4	4	5	4	5	4.4	2	2	1	3	2	2	2	2.0	3	3	3	4	3	3	3	3.1
34	2	4	3	5	3	3	3	3.2	3	3	2	3	2	3	2	3.0	3	3	2	3	3	3	4	3.0
35	3	3	3	3	4	3	2	3.0	3	2	2	2	3	2	1	2.1	4	3	3	4	3	4	3	3.4
36	5	5	5	4	3	5	4	4.4	3	2	1	2	2	2	1	1.8	4	2	2	4	3	4	4	3.2
37	3	5	3	4	3	2	2	3.2	2	–	–	2	3	3	1	2.2	5	–	–	4	4	4	4	4.2
38	3	3	3	4	4	3	5	3.8	2	2	2	3	2	3	1	2.0	4	–	–	3	4	3	4	3.6
39	5	2	2	2	3	3	2	2.7	2	2	2	2	3	2	1	2.0	3	3	3	3	4	3	3	3.1
Mean	3.8	4.0	3.7	4.0	4.0	3.6	3.4	3.78	2.5	2.2	1.7	2.5	2.4	2.5	1.5	2.26	3.7	2.7	2.6	3.6	3.4	3.6	3.7	3.39
S. D.								.66								.40								.36
Range								2.7-4.5								1.8-3.0								3.0-4.2
P. E. (mean)								.14								.08								.08
P. E. (s. d.)								.10								.06								.05
Q_3								4.45								2.45								3.65
Q_1								3.22								2.05								3.15
Q								.62								.20								.25

TABLE XIII

THE RATINGS BY GROUP G ON THE EXPERIMENTAL FILM (ARITHMETIC)

Supervisors	First Rating	Second Rating	Third Rating	Fourth Rating
		Observed Film II using Chart*	Observed Film III using Chart*	Observed Film IV using Chart*
20	5	4	4	4
21	5	3	3	3
22	4	4	4	4
23	3	4	4	2
24	4	4	4	4
25	2	2	2	3
26	3	3	3	4
27	3	4	4	4
28	3	4	4	4
29	2	3	3	3
Mean	3.4	3.5	3.5	3.5
S. D.	1.02	.67	.67	.67
Total Range	2-5	2-4	2-4	2-4
P. E. (mean)	.22	.14	.14	.14
P. E. (s. d.)	.15	.10	.10	.10
Q_3	4.75	4.60	4.60	4.60
Q_1	3.13	3.50	3.50	3.50
Q	.81	.55	.55	.55

*For ratings given by this group on practice films see Table XIV.

TABLE XIV

THE RATINGS BY GROUP G ON PRACTICE FILMS

Supervisors	Reading Analysis Chart								Civics Analysis Chart								Geography Analysis Chart							
	a	b	c	d	e	f	g		a	b	c	d	e	f	g		a	b	c	d	e	f	g	
20	4	–	–	4	3	4	4	3.8	3	2	1	3	3	3	2	2.4	4	2	2	4	3	2	3	2.8
21	3	–	–	3	3	4	3	3.2	3	2	1	3	2	3	2	2.2	4	2	2	4	4	3	4	3.2
22	4	4	4	4	3	4	4	3.8	2	–	–	3	3	3	2	2.6	4	2	2	4	3	3	–	3.0
23	4	–	–	4	2	3	4	3.4	2	2	1	3	3	3	1	2.1	4	2	3	4	3	2	4	3.1
24	4	4	4	4	3	3	–	3.6	3	–	–	3	2	3	1	2.4	4	2	–	4	3	3	4	3.3
25	3	–	–	4	3	2	2	2.8	3	2	1	2	2	3	1	2.0	4	–	–	4	4	3	–	3.7
26	3	–	–	4	2	3	4	3.2	2	1	1	3	3	3	1	2.0	3	2	–	4	4	3	–	3.2
27	4	–	–	4	3	4	4	3.8	3	–	–	3	3	2	2	2.6	3	3	–	4	4	3	3	3.3
28	4	4	4	4	3	3	4	3.7	3	1	1	2	2	3	1	1.8	3	2	3	4	4	4	3	3.2
29	4	4	4	3	3	3	4	3.5	3	1	1	2	2	2	1	1.7	4	3	2	4	3	3	3	3.1
Mean	3.7	4	4	3.8	2.8	3.3	3.7	3.48	2.7	1.6	1	2.7	2.5	2.8	1.4	2.18	3.7	2.2	2.3	4	3.5	2.9	3.4	3.19
S. D.								.32								.30								.22
Total Range								2.8-3.8								1.7-2.6								2.8-3.7
P. E. (mean)								.07								.06								.05
P. E. (s. d.)								.05								.05								.03
Q_3								3.82								2.48								3.33
Q_1								3.28								2.03								3.13
Q								.27								.23								.10

TABLE XV

THE COMBINED EFFECT OF PRACTICE, OBSERVATION, LIST OF FACTORS AND AN ANALYSIS CHART ON SUPERVISORS' RATINGS OF THE EXPERIMENTAL FILM

Experimental Film — Arithmetic

Groups of Supervisors	Mean First Rating	S. D. First Rating	Mean Second Rating	S. D. Second Rating	Mean Third Reading	S. D. Third Reading	Mean Fourth Reading	S. D. Fourth Reading
			Control		Control		Control	
A	3.4	1.02	3.4	.91	3.4	.91	3.4	.91
			Observation		List-Seven Factors		Analysis Chart	
B	3.4	1.02	3.3	1.00	3.1	.94	3.4	.64
			Observation		List-Seven Factors		List-Seven Factors	
C	3.4	1.02	3.2	.87	3.3	.90	3.4	1.02
			Observation		Observation		List-Seven Factors	
D	3.4	1.02	3.2	.87	3.3	.90	3.2	.87
			List-Seven Factors		Analysis Chart		Analysis Chart	
E	3.4	1.02	3.1	.94	3.2	.60	3.4	.64
			List-Seven Factors		List-Seven Factors		Analysis Chart	
F	3.4	1.02	3.2	.97	3.4	.91	3.2	.60
			Analysis Chart		Analysis Chart		Analysis Chart	
G	3.4	1.02	3.5	.67	3.5	.67	3.5	.67

It is important to note that in the first step of the experiment, seventy supervisors observed the same film under the same conditions. A study of the data shows that the assumption made in Chapter I concerning the variability of supervisory evaluations of the teaching-learning act is, to some extent, justified. While 14 or 20 percent of the judges considered the teaching-learning act superior, another 20 percent judged it above average and 40 percent ranked it average. The fact brought out by these data is that 20 percent judged the performance below average, while the same percent ranked the teacher superior.

The Effect of Practice in Observing the Same Learning Situation on the Variability of Supervisors' Ratings of the Lesson. (Group A)

After analyzing the data in Table II, it seems safe to say that supervisors need to be rather cautious in drawing conclusions based on the first observation of a teaching-learning act for six out of the ten judges changed their estimates on the second observation of the identical classroom situation. The relationship existing between first and second ratings was computed by the formula.

$$\rho = 1 - \frac{6\,\Sigma D^2}{N(N^2 - 1)}$$

The coefficient of correlation ρ was found to be $.70 \pm .11$. The group, however, was less variable on the second rating, but showed no further reduction in variability on the third and fourth ratings.

The Effect of Practice, Observation of Different Learning Situations, and of the Use of a List of Factors on the Variability of Supervisors' Ratings of the Lesson. (Group D)

In an attempt to find out what would be the effect of observing new classroom situations on supervisors' judgments, Group D first observed and then rated a reading lesson. The supervisors in the group gave a second estimate of the arithmetic film. A civics film was then observed and rated;

a third evaluation of the experimental film was recorded. The effect of practice in observing the same and different lessons produced a closer agreement in supervisors' ratings. This group of judges observed a geography lesson, using a list of seven factors.

This group became less variable as a result of the combined influence of observational work and the use of a list of factors.

The Effect of Practice, Observation, and Two Uses of List on the Variability of Supervisors' Ratings of the Lesson. (Group C)

This group first observed the reading lesson. In the second rating of the arithmetic lesson, the variability is reduced. The list was then used in observing the civics film. When a third evaluation of the experimental film was recorded, there was a very slight increase in variability (Table V). The group used the list the second time in evaluating the geography lesson. In the fourth rating of the arithmetic film, the group again became more variable.

Practice in observing the same and different lessons and in using a list of factors twice, had no influence in making supervisors agree more closely in their judgments.

The Effect of Practice, Observation, One Use of the List, and One Use of the Chart of the Variability of Supervisors' Ratings of the Lesson. (Group B)

The supervisors in Group B observed and rated the reading lesson. The group showed no reduction in variability in the second rating as a result of the observations. A list of factors was used in rating the civics lesson. In the third rating of the experimental film, the group became less variable. A study of the figures in Table VII shows the influence of the chart on the supervisors' judgments of lessons which they had previously evaluated three times, using observation and a list of factors as the supervisory techniques. The effect of the use of the chart in this group is to reduce the variability of the ratings (Table VII).

Practice in observing the same and different lessons, the

use of the list of factors, and of a chart influenced the supervisors to agree more closely in their judgments of a lesson.

The Effect of Practice, Observation, Two Uses of the List, and One Use of the Chart of the Variability of Supervisors' Ratings of the Lesson. (Group F)

The supervisors in Group F were influenced by two uses of the list of factors before the use of the chart. In the second rating of the arithmetic lesson, after one use of the list there is a very slight reduction in variability. This group became less variable in the third rating as a result of two uses of the list. The effect of the use of the chart is seen in the fourth rating of the lesson.

The combined effect of practice in observing the same and different teaching performances, two uses of the list, and one use of the chart produced a reduction in variability.

The Effect of Practice, Observation, One Use of the List, and Two Uses of the Chart of the Variability of Supervisors' Ratings of the Lesson. (Group E)

This group showed the influence of one use of the list before using the chart twice in the evaluation of the different lessons. The use of the list caused a slight reduction in variability in the second rating of the arithmetic lesson. The effect of the use of the chart is evident in the third and fourth ratings.

The combined effect of practice in observing the same and different lessons, one use of the list, and two uses of the chart, produced a reduction in variability.

The Effect of Practice, Observation, and Three Uses of the Chart on the Variability of Supervisors' Ratings of the Lesson. (Group G)

The figures in Table XIII show the effect of the use of the chart on the ratings of supervisors as a device for reducing variability. This reduction (.35 sigma) is significant enough for it to be said that the group became considerably less variable when the chart was used. The second and third use of the chart did not produce any greater reduction in variability than the first use.

SECTION II

In the preceding section, the interpretation of data was based on the combined effect of the devices which were used by the different groups of supervisors. The use of the chart always included the use of the list, observation, and a practice effect. In establishing claims, however, for the chart as a means of reducing variability, the effect of the other techniques must be given due consideration. This section, therefore, is concerned with (1) the use of an analysis chart, (2) the use of seven factors, (3) observation of different lessons, (4) repeated observations of the same lesson.

For convenience in interpreting the data under this aspect, Table XVI and Diagram two have been prepared.

Effect of One Use of the Chart

The effect of one use of the chart is seen in Group G in the second rating of the arithmetic lesson. Groups E, F, and G showed the influence of one practice, one observation, and one use of the list. The only difference between G and the other two groups was the fact that G in addition used the chart. Therefore, the greater reduction in variability must have been caused by the use of the chart.

It is also possible to see the influence of one use of the chart in Group E in the third rating of the lesson. Groups E and F had each two practices, two observations, and two uses of the list, but E in addition used the chart. The greater reduction in variability in Group E was, therefore, produced by one use of the chart.

In the comparison of the fourth ratings of Groups B and C, the effect of one use of the chart is again evident. Both groups had three practices, three observations, three uses of the list, but B in addition used the chart. The greater reduction in variability in B, therefore, must have been caused by one use of the chart.

DIAGRAM 2

THE SEVEN STEPS IN THE EXPERIMENTAL PROCEDURE *

Observational Procedures of Supervisory Groups

STEPS							
I	Seventy supervisors observed and gave rating to film I.						
	CONTROL GROUP	EXPERIMENTAL GROUPS					
	A	B	C	D	E	F	G
II	No activity	Film II O L C			Film II O L C		Film II O L C
III	Seven Groups (seventy supervisors) gave second rating to film I showing effect of step II						
	CONTROL GROUP	EXPERIMENTAL GROUPS					
	A	B	C	D	E	F	G
IV	No activity	Film III O L C		Film III O L C	Film III O L C	Film III O L C	Film III O L C
V	Seven groups observed, gave third rating to film I showing effect of Step IV						
	A	B	C	D	E	F	G
VI	No activity	Film IV O L C	Film IV O L C	Film IV O L C	Film IV O L C	Film IV O L C	Film IV O L C
VII	Seven groups gave fourth rating to film I showing effect of step VI						

* Legend

O — Observation which includes practice

L — Use of list which always includes practice and observation

C — Use of chart which always includes practice, observation, and use of list.

TABLE XVI

THE EFFECT OF DIFFERENT PROCEDURES ON THE VARIABILITY OF THE RATINGS OF THE EXPERIMENTAL FILM BY THE SEVEN GROUPS OF SUPERVISORS AS MEASURED BY THE STANDARD DEVIATION

Groups of Supervisors		Experimental Film—Arithmetic Standard Deviations
		Second Rating S. D. Difference
A	One practice	.11
B, C, D	One practice and one observation	.16
E, F	One practice, one observation, and one use of list	.06
G	One practice, one observation, one use of list, and one use of chart	.35
		Third Rating S. D. Difference
A	Two practices	.11
B, C	Two practices, two observations, and one use of list	.08
D	Two practices and two observations	.12
E	Two practices, two observations, two uses of list, and one use of chart	.42
F	Two practices, two observations, and two uses of list	.11
G	Two practices, two observations, two uses of list, and two uses of chart	.35
		Fourth Rating S. D. Difference
A	Three practices	.11
B	Three practices, three observations, two uses of list, and one use of chart	.38
C	Three practices, three observations, two uses of list	.00
D	Three practices, three observations, and one use of list	.15
E	Three practices, three observations, three uses of list, and two uses of chart	.38
F	Three practices, three observations, three uses of list, and one use of chart	.42
G	Three practices, three observations, three uses of list, and three uses of chart	.35

THE EFFECT OF TWO USES OF THE CHART

The effect of two uses of the chart is seen on Group G in the third rating of the lesson. The only difference between Groups G and F was the fact that G used the chart twice. Both groups had two practices, two observations, and two uses of the list. The greater reduction in variability in G, therefore, was produced by the two uses of the chart.

Effect of Second Use of the Chart Over and Above the First Use

The second use of the chart over and above the first use is seen in Group G in the third rating. The only difference between Groups E and G was the fact that E used the chart once and G used the chart twice. Since the greater reduction in variability occurred in Group E after one use of the chart, it seems evident that the second use of the chart in Group G had no effect in reducing the variability.

The effect of the second use of the chart over and above the first use is again seen in a comparison of the fourth ratings of Groups E and F. These two groups showed the influence of three practices, three observations, and three uses of the list. The only difference between the two groups was that F had one use of the chart and E had used the chart twice. However, the greater reduction in variability in Group F, which had used the chart only once, shows that the second use of the chart in E was not effective in reducing variability.

Summary

1. The Effect of the Use of an Analysis Chart. (Table XVI)
   1. One use of the chart in Group G produced a change of .29 sigma in the second rating of the arithmetic lesson.
   2. One use of the chart in Group E produced a change of .31 sigma in the third rating of the arithmetic lesson.
   3. One use of the chart in Group B produced a change of .38 sigma in the fourth rating of the arithmetic lesson.
   4. Two uses of the chart in Group G produced a change of .24 sigma in the third rating of the arithmetic lesson.
   5. Second use over and above the first use of the chart in Group G produced a change of .07 sigma in the third rating of the arithmetic lesson.
   6. Second use over and above the first use of the chart in Group E produced a change of .04 sigma in the fourth rating of the arithmetic lesson.

The Effect of One Use of the List

The effect of one use of the list is seen in Groups E and F on the second rating of the arithmetic lesson. The only difference between Groups B, C, D and these two groups was the fact that E and F used the list. All five groups had one practice and one observation. The greater reduction in variability occurred in Groups B, C, and D which did not use the list. The use of the list, therefore, does not reduce variability.

It is also possible to see the effect of one use of the list in Groups B and C in the third rating of the lesson. Groups B, C, and D were influenced by two practices and two observations. Groups B and C also used the list. The greater reduction in variability occurred in Group D which did not use the list. Therefore, the list was not effective in reducing variability.

The Effect of Two Uses of the List

The effect of two uses of the list is evident in Group F in the third rating. Groups F and D were influenced by two practices, two observations; Group F also had two uses of that list. The slight reduction in variability occurred in Group D which did not use the list. It is evident, therefore, that the use of the list did not produce a reduction in variability.

Effect of the Second Use of the List Over and Above the First Use

The effect of the second use of the list over and above the first use is shown in Group G in the fourth rating of the arithmetic lesson. Groups C and D showed the influence of three practices, three observations, and one use of the list; Group C, however, had a second use of the list. The greater reduction in variability occurred in Group D which had used the list once. Therefore, the second use of the list, was not effective in reducing variability; in fact, there is a slight increase in variability.

Summary

1. The Effect of the Use of the List of Factors.
   1. The one use of the list in Groups E, and F produced a change of .10 sigma in the second rating of the arithmetic lesson.
   2. One use of the list in Groups B and C produced a change of .04 sigma in the third rating of the arithmetic lesson.
   3. Two uses of the list in Group F produced a change of .01 sigma in the third rating of the arithmetic lesson.
   4. Second use of the list in Group C produced a change of .15 sigma in the fourth rating of the arithmetic lesson.

The Effect of One Observation

The effect of one observation is seen in Groups B, C, D in the second rating. Groups B, C, D, and A showed the influence of one practice. The difference between A and the other three groups was the fact that B, C, D observed a new lesson. The slight reduction in variability in these three groups must have been caused by this observation.

The Effect of Two Observations

The effect of two observations is evident in Group D in the third rating. Group D was influenced by two practices and two observations; Group A had only two practices. The slight reduction in variability in D must have been an effect of the two observations.

Summary

1. The Effect of Observation.
   1. One observation (of itself) in Groups B, C, and D produced a change of .05 sigma in the second rating of the arithmetic lesson.
   2. Two observations in Group D produced a change of .01 sigma in the third rating of the arithmetic lesson.

The Effect of Practice

Since Group A (control group) was not influenced by the use of any supervisory techniques, the reduction in variability in the second rating was an effect of one practice. This group showed no further reduction as an effect of the second or third practice.

Summary

1. The Effect of Observation of the Same Lesson (Practice Effect).
   1. One practice in Group A produced a change of .11 sigma in the second rating of the arithmetic lesson.
   2. Two practices in Group A produced a change of .11 sigma in the third rating of the arithmetic lesson.
   3. Three practices in Group A produced a change of .11 sigma in the fourth rating of the arithmetic lesson.

Conclusions

The use of an analysis chart which defines and describes five levels of each of seven factors involved in the teaching-learning act caused a reduction in the variability of supervisors' ratings of classroom situations. Two or three uses of the chart did not cause any greater reduction in variability than that produced by the first use. Perhaps this result can be explained by the fact that the supervisors who participated in the experiment had opportunity to become familiar with the chart before using it the first time.

The data give evidence that one or two uses of the list slightly increased the variability of the ratings. Variability was also increased by the second use of the list over and above the first use. It seems, therefore, that variability is not reduced where the list is used without the chart.

Observations of different lessons had a very slight influence in reducing the variability of supervisors' judgments of a teaching-learning act. Observation of the same lesson twice reduced the variability of supervisors' ratings of a lesson but the third or fourth observation did not cause any greater reduction.

SECTION III

In this section will be found a comparison of the ratings of the supervisors who observed and rated the arithmetic lesson and the estimates given by the judges who used pupil progress as a criterion by which to evaluate the teaching performance.

It was stated in Chapter II that any supervisory device which reduces variability of supervisors' judgments of a lesson should also produce a closer relationship with a reliable measure of the worth of the teaching performance. The criterion adopted as a reliable measure of the value of a lesson was based on the mean rating (3.6) given by forty-five judges.

Table XVII gives the ratings of the arithmetic lesson by the forty-five judges. These ratings were determined by the information which was given to the judges concerning the mental equipment of the class and the scores made in the arithmetic test material.

TABLE XVII

RATINGS OF FORTY-FIVE JUDGES DETERMINED BY PUPIL PROGRESS

Ratings	Superior (5)	Above Average (4)	Average (3)	Below Average (2)	Inferior (1)
Number of Supervisors	2	26	16	1	0
Percent	4.4	57.7	35.7	2.2	0

Table XVIII has been prepared to show the number of supervisors who did not change their judgments of the lesson, those who changed their ratings and approached "the established measure," and the supervisors who changed their estimates away from "the established measure."

THE EFFECT OF THE USE OF THE CHART

Groups E, F, and G showed the effect of one practice, one observation, and one use of the list in the second rating of the arithmetic lesson. The only difference between G and

Supervisors		Mean on First Rating	Mean on Second Rating	Percent of Supervisors who changed toward M_1	changed away from M_1	did not change ratings
E	Two practices, two observations, two uses of list, and one use of chart	3.1	3.2	40	10	50
		Mean on First Rating	Mean on Second Rating			
C	Three practices, three observations, and two uses of list	3.3	3.4	20	50	30
B	Three practices, three observations, two uses of list, and one use of chart	3.1	3.4	40	10	50

TABLE XX

THE EFFECT OF THE USE OF THE LIST IN PRODUCING A CLOSER APPROACH TO "THE ESTABLISHED MEASURE"* OF THE VALUE OF THE LESSON

Supervisors		Mean on First Rating	Mean on Second Rating	Percent of Supervisors who changed toward M_1*	changed away from M_1	did not change ratings
B, C, D	One practice, one observation	3.4	3.25	20	15	65
E, F	One practice, one observation, and one use of list	3.4	3.25	23.3	16.6	60
D	Two practices and two observations	3.2	3.3	30	20	50
B, C	Two practices, two observations, and one use of list	3.25	3.2	25	20	55

* M_1 is "the established measure."

The use of the list in securing a closer approach to "the established measure" is seen in Groups E and F in the second rating. Groups B, C, D, E, and F had one practice and one observation, but Groups E and F also used the list. The data in Table XX prove that the list caused the groups which used this technique to change their ratings away from "the established measure."

Groups B and C also showed the use of the list in the fourth rating. Groups B, C, and D had two practices, two observations. The only difference between D and the two other groups was the fact that B and C used the list. It is again evident from the data in the table that the use of the list did not cause an approach to "the established measure" of the value of the lesson.

TABLE XXI

THE EFFECT OF OBSERVATION AND PRACTICE IN SECURING A CLOSER APPROACH TO "THE ESTABLISHED MEASURE" OF THE VALUE OF THE LESSON

Super-visors		Mean on First Rating	Mean on Second Rating	Percent of Supervisors who changed toward M_1	changed away from M_1	did not change ratings
A	One practice	3.4	3.4	40	20	40
B, C, D	One practice and one observation	3.4	3.23	23.3	16.6	60
A	Two practices	3.4	3.4	40	20	40

In the second rating of the lesson, Groups A, B, C, and D were influenced by one practice. The difference between A and the other three groups was the fact that B, C, and D also had one observation. It seems evident that the practice effect was greater than observation in securing a closer approach to "the established measure" of the value of the lesson.

SECTION IV

Summary

The purpose of the study was to determine the effect of certain selected measures on the variability of supervisors' judgments.

Seventy supervisors participated in the experiment. The ratings of the supervisors were made not on actual classroom teaching, but on silent motion pictures and stenographic reproductions of the teacher-pupil activities in an actual classroom. The four films showed lessons in the various fields of arithmetic, reading, civics, and geography. In the films, the same group of pupils of seventh grade level under the guidance of four different teachers was observed.

The supervisory techniques used in the experiment were observation of the same and of different films, the use of a list of seven factors, and of a chart which analyzes the seven factors into five distinct levels.

Four meetings of the supervisors were held while the experiment was in progress. At the first meeting, the seventy supervisors observed and rated the arithmetic film, called the experimental film. Using the mean of the ratings as a measure of the central tendency and the standard deviation as a measure of variability the seventy supervisors were divided into seven groups of ten each. By means of the experimental set-up, it was possible to study the effect of the different supervisory techniques on the variability of the supervisors' ratings of the arithmetic lesson.

Information concerning the status of the group of pupils who were used in the experiment was sent to forty-five principals, supervisors, and practice teachers. These judges were asked to rate the teaching performance and to base their judgments on the progress of the pupils which was measured by the gains in a standard arithmetic test given before and after the lesson.

General Conclusions

As a measure of promoting agreement in supervisory ratings of classroom situations, the evidence is in favor of a chart which analyzes seven factors involved in the teaching-learning act into five distinct levels. The group of supervisors showed a greater reduction in variability when influenced by the chart than by the list of factors or by observation of a same or different lessons.

The chart not only promoted agreement in supervisory ratings of the teaching performance, but it also produced a closer approach in the supervisory judgments to a reliable criterion of the value of the lesson.

It was not possible to test for significance, because of the small number of supervisors in the different groups, but since the results are consistent, some significance is evident.

Therefore, since there is evidence of a definite and significant trend in the reduction of variability of ratings which is produced by the use of an analysis chart, some value should be attached to the use of this technique in the training of supervisors.

CHAPTER IV

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CHAPTER V

Learning Situation

Problem Analysis in Arithmetic
Seventh Grade
(First Year Junior High)

Teacher: Everyone has problems to solve. The Government has its problem of international question. I know you have been reading the papers and know the problem between Japan and China.

Pupil: The daily papers are full of the troubles between China and Japan.

Teacher: Yes, and we have our own troubles at home. What is the big home problem that is worrying every American?

Class: There are so many people unemployed.

Teacher: You know that the Governor and Mayor are occupied all the time trying to find the correct way to solve this and other important problems so that all citizens will receive benefit.

Pupil: The Legislature helps these officials to solve these problems.

Teacher: Yes, that is true. However, we must all learn to solve our own problems. We can learn some helps to aid us in thinking our way through the different types of problems.

Teacher: Failure to understand a problem in whole or in part is shown when you fail to do it at all or when you use the wrong process. One of the most helpful hints to remember is to read the problem intelligently.

Pupil: I use the dictionary.

Pupil: The dictionary does not help me very much in arithmetic.

Teacher: The proper type of dictionary and the correct use of it should prove helpful in finding the meaning of words not found in your arithmetic.

Pupil: I think that will help me; I'll try.

Teacher: It is also necessary to read very carefully. Sometimes I fear, we skim too quickly in reading the problem. Read it several times until you are sure you understand it thoroughly. Think while you are reading.

Pupil: We have to think if we want to do anything in a subject.

Picture

Pupil: Sometimes it is very confusing to know what it is all about. I get lost and I can't find my way in the working of the questions in the Arithmetic.

Teacher: Perhaps the lesson this morning will help you. Could you tell us now what you think is your difficulty?

Pupil: I can't say exactly. I get some problems and then I meet others and I think I am doing them correctly and I find find out they are all wrong.

Teacher: Well, I have planned to give you a few hints which I feel

will guide you in the working of all problems. Then I will ask you to try to apply the principles we have discussed together. We can see what is causing the trouble. You will all be on the lookout for your weak points in working problems.

Pupil: I would like to know how to get all of the problems correct.

Teacher: We will work out special exercises to help you, if we find out we need them.

Picture

Pupil: In our history class yesterday, we talked about the importance of learning how to approach problems in citizenship.

Teacher: Children, you will find out that it is not only helpful but most essential that you learn how to think intelligently and accurately about big problems.
(Teacher writes on board)

1. Read the problem at least twice.

Picture

Teacher: Here is a problem. John sold 50 papers in the morning, 30 papers in the afternoon. How many papers has he sold all day?

Pupil: I think the first thing to do is to answer the question, "What does the problem ask for?"

Teacher: In order to find the answers to this question, what must you know?

Pupil: The papers sold in the morning and in the afternoon.

Teacher: Study the following problem:
If John delivers 50 papers in the morning and 30 papers in the evening, how many papers does he deliver in 3 days?

Pupil: To find the number of papers he delivers in 3 days, I find out first the number he delivers in 1 day.

Teacher: Always see if you work the different steps in the problem.

Pupil: What does the problem ask for in each step?
(Teacher writes on the board)

2. What does the problem want me to find?

Teacher: What do you think is the next thing to do?

Pupil: Find out the facts that are given.

Teacher: When you read the problem do you find the facts easily?

Pupil: If you are thinking, you should find them.
(Teacher writes on the board)

3. Find the facts given in the problem.

Picture

Teacher: Now, what is the fourth step?

Pupil: How am I going to work the problem?

Teacher: What process am I going to use to work this question out? What do I mean by process?

Pupil: Addition, subtraction, multiplication and division are called processes in arithmetic.
(Teacher writes on the board)

4. What process shall I use?

Picture

Teacher: I have read the problem carefully and I know what the question asks for and what is given. I also know what processes are to be used, and the fifth step is as important as these four steps. You must approximate or think about what the answer will be before you begin to work.
Pupil: Do you mean to think out the answer?
Teacher: Suppose I say, how high is this room? If you would just simply estimate and say this room is 50 feet high, what would you think?
Pupil: No one could say that about this small room.
Teacher: Could you tell me about how high is this room?
Pupil: It is about 9 feet.
Teacher: Why do you say it is about 9 feet?
Pupil: Because I do not know exactly how high it is; I think it is about 9 or 10 feet high.
Teacher: How high would you say it is John?
Pupil: 15 feet.
Teacher: Why?
Pupil: I just figured it out by my ruler while you were talking.
Teacher: That is a good estimate.
(Teacher writes on the board)

5. Estimate your answer.

Picture

Teacher: Know and understand these rules; do your own thinking about these rules and you will find them most helpful. What is the sixth step?
Pupil: What is the answer?
Teacher: What kind of an answer do you want to get?
Pupil: What is the correct answer?
Teacher: First you estimate your answer and then check for correct answer.
(Teacher writes on the board)

6. The correct answer.

Teacher: What is next?
Pupil: Prove your answer is correct.
Teacher: Prove it or check it.
(Teacher writes on the board)

7. Check.

Picture

Teacher: Read the different steps, Mary.
Pupil: 1. Read the problem at least twice.
2. What does the problem want me to find?

3. What facts are given?
4. What process shall I use?
5. Estimate an answer.
6. Solve for the correct answer.
7. Check.

Teacher: Who can give the steps to me without looking at the board?

Pupil: Read the problem at least twice.
What does the problem ask for?
What facts are given?
What process shall I use?
Estimate an answer.
Solve and check the correct answer.

Picture

(Papers containing the following work were then given to the class.)

Teacher: Follow the steps very carefully. Remember the first step is very important. Read your question over carefully at least twice. If it is not clear at first then read it over the second and third time, and if you do not then understand it, read it over again and again. Use the dictionary if necessary.

Picture

PROBLEM 1.

The Brock and Steel Hardware Company gives a 3% discount on all bills paid within 10 days from the date of purchase. Mr. E. R. King bought $35 worth of wire fencing. Three days later he sent a check in payment of the bill. How much did he actually pay?

Select the correct answers to each of the four questions given below.

1. What is asked for?
   a. The date Mr. King paid the bill
   b. The amount of fencing bought
   c. The rate of discount
   d. How much Mr. King paid
   e. The amount saved by paying the bill within 10 days
2. What facts are given?
   a. Rate of discount allowed for cash within 10 days
   b. The amount actually paid
   c. The list price of the goods
   d. When the bill was paid
   e. The amount Mr. King saved
3. What are the right steps or processes?
   a. Find 3% of $35 and add this to $35.
   b. Find 3% of $35.
   c. Find 3% of $35 and subtract this amount from $35.
   d. Subtract 3c. from $35.
   e. Divide $35. by .03.

4. What would be a reasonable answer (a good estimate)?
   a. $34.97
   b. About $34
   c. About $1.05
   d. About $30
   e. About $25

Picture

Teacher: The first question is the date Mr. King paid his bill. Is that what was asked for in this question?
Pupil: No.
Teacher: The amount of fencing purchased?
Pupil: No.
Teacher: The rate of discount?
Pupil: No.
Teacher: How much Mr. King paid?
Pupil: Yes.
Teacher: In the first step what is asked for? Which one of the items a, b, c, d, or e is the correct answer?
Class: D.
Teacher: Have you all placed a mark by D?

Picture

Teacher: What facts are given? There are several sub-divisions; look them over, and decide what facts are given.
Take the third step. What are the right steps in the process.
Write out what you think is the correct answer. Do the same thing with the fourth step.
See if we all agree.
Pupil: I marked B for the correct answer in the second step.
Pupil: I have A.
Teacher: Why A?
Pupil: Rate of discount allowed for cash within 10 days.
Pupil: I marked C.
Teacher: Read item C.
Pupil: The list price of the goods. That is the most important fact, I think.
Teacher: Do you notice it says that what facts are given? Is only one fact given?
Pupil: Two facts are given.
Teacher: What are the two facts?
Pupil: A and C.

Picture

Teacher: Are there any questions to be asked? Do you all understand? What have you for the next part? What process shall I use?
Pupil: I marked C.
Teacher: Read item C. Is there anyone who does not agree on this point?
Pupil: Find 3% of $35 and subtract this amount from $35.
Teacher: Estimate an answer. There is 3% discount and you have $35. How could you go about estimating an answer?

Pupil: Take 3% of $35 and subtract the answer from $35.
Teacher: Just estimate. Do you think $7 would be too much for the answer?
Pupil: That is a foolish estimate.
Pupil: It is about $34.
Teacher: How did you arrive at that answer?
Pupil: 3% is only three hundredths off and if you work that out, it will only come to about $1 off.
Teacher:: You have the right idea. You can practice it up and it will keep you from giving ridiculous answers. Suppose you go to the board and show me how you would find the correct answer.

(Boy goes to board and writes)

$.35	$35.00
.03	1.05
$1.05	$33.95

Picture

Teacher: I will give you a set of problems for your assignment, and then tomorrow we will discuss any difficulties you may meet.

A. Mary bought 3 oranges at 5c each. She gave the clerk $.25. How much change would she receive?
   a. What is the question you are to answer?
   b. Before you can find the amount of change Mary should receive, what must you know?
   c. Does the problem tell you how much Mary spent?
   d. How can you find how much Mary spent?
   e. When you know how much Mary spent, how can you find the amount of change Mary should receive?

B. Work the second and third problems in your arithmetic, p. 31. Use the hints given in section A in solving the problems.

CHAPTER VI

Appendix

Learning Situation — Reading

Seventh Grade
(Junior High Level)

I wonder how many of you boys and girls have read the newspapers for the past few days. No doubt you have noticed that the Democratic National Committee has been meeting in Washington and making plans for their Democratic National Convention. In June 1932, the Democrats will decide on their Presidential Candidate. You all, I suppose, have heard the voice of Lowell Thomas, the radio voice of the Literary Digest. On Friday night of this past week, I heard Lowell Thomas say, "The newspapers of the country will be eagerly looked for tomorrow morning and night; the Jackson Day Dinner is being held in Washington. At this dinner, the leaders of the Democratic Party will give us much of political significance and will pay honor to that outstanding character, Andrew Jackson."

Your reader tells you in a different way, all about the high tribute paid to the same hero.

The Man on Horseback (Harriet Chappel Hobson) (Page 442-447).

Picture

The first paragraph of the story written by Miss Harriet Chappel Hobson on page 442 gives you the answer to the first question I have in mind.

What is this tribute to General Jackson?

Pupil: A most remarkable statue, and with one exception, the first "Man on Horseback" is the Jackson Monument which stands in Lafayette Square, Washington, D. C.

Teacher: What was the fate of the first "Man on Horseback"?

Pupil: The mounted figure of George III was placed at the foot of Broadway, New York, in 1770. July 4, 1776 came. A few days later, the monument was destroyed by the patriotic citizens.

Teacher: What happened on July 4, 1776?

Pupil: The thirteen colonies declared their independence.

Pupil: The fragments of the Statue were melted into bullets to shoot the British soldiers.

Picture

Teacher: From the next paragraph what do you consider the most unusual fact about the creation of the statue in honor of Andrew Jackson?

Pupil: The entire statue, model and casting, was the work of one

man, Clark Mills. He was an untaught artist, but he had genius and strong will power.

Picture

Teacher: I will give you a few questions and you read silently for a little while. We will then talk over the lesson and see what we have learned.

(Questions written on board. Class reads silently for ten minutes)

1. What was the early life of Clark Mills?
2. How did he spend his leisure time?
3. What great gifts did he have?
4. How did the world of art come to recognize Clark Mills as a genius?
5. In what way did the Jackson Democratic Association bring out the real genius of Clark Mills?
6. What was the guiding force in the creation of his work?
7. Name some of the obstacles that confronted Clark Mills in his work?
8. What evidence of real genius do we find in the finished statue?
9. What double tribute do you find in the unveiling speech of Stephen A. Douglas?

Picture

Teacher: Are we ready now to talk over the useful lessons we have gathered from reading the story of Clark Mills?

Pupil: Clark Mills was born in New York in 1815. Even when he was a little boy he liked to make things. He worked with wax, mud, and clay; most of the time he modeled human faces.

Picture

Teacher: He could model a wax face and then stamp upon it any emotion he chose. What is meant by an emotion?

Pupil: Some expression or look on your face that shows what you are inside—your feelings.

Teacher: That is a good definition for a little boy.

Pupil: Clark was a poor boy and could not afford to study art and so he taught himself; he used his recreation time to work with wax, mud, or clay and his fingers were always making things.

Picture

Teacher: Was Clark easily discouraged when he failed? Did he have patience when he had to do the same thing many times?

Pupil: No, indeed, he failed many times but he tried again; he worked out his own rules after he had made many attempts.

Picture

Teacher: How did the world of art find out about Clark Mills?

Pupil: His plaster busts drew the attention of some people; they were true to life. Citizens of Charleston bought his marble bust of Calhoun.

Teacher: The people recognized that the timid plasterer must have magic fingers and that he must be a genius.

Pupil: Yes, and they offered to send him to Europe to study under great masters. This was in 1846.

Teacher: Clark Mills must have been overjoyed to hear such good news, because he had always wished to study art under the great teachers. What happened that made Clark Mills change his mind about going to Europe?

Pupil: He was about to leave for Europe when he heard in Washington (1848) that the Jackson Democratic Association wished to erect a statue in memory of Andrew Jackson. Clark Mills made up his mind at once that he wanted to give to the people a monument that would tell them how he thought of Andrew Jackson.

Picture

Teacher: Clark Mills loved and revered Jackson and while he realized the greatness of the undertaking, he was filled with a mighty desire which gave him the necessary strength to overcome all obstacles. Was it an easy task to attain his desired goal?

Pupil: He had a little money, and with it he bought the necessary clay, wax, and a few tools to make the model. He worked earnestly; his model was accepted and now the real work was begun.

Picture

Teacher: Why was the task so very difficult if Clark Mills was a real genius as the people proclaimed him?

Pupil: Clark Mills had never seen an equestrian statue; he had no guide. He had to invent his own tools. He even had to train, for a whole year, a horse to pose as a model.

Picture

Teacher: Who helped the sculptor with the casting?

Pupil: He made his own molds and this is why he is considered so great. He kept on going and when he needed something, he found a way to make it.

Teacher: He used the metal from cannon that Andrew Jackson had captured in the campaign.

Pupil: At last, America's first "Man on Horseback" was mounted on a granite pedestal. It is very real; Jackson seems to speak to you.

Teacher: What did Jackson's soldiers say?

Pupil: "It is our General!" They wept when they saw the wonderful monument to their hero.

Picture

Teacher: When was the statue unveiled? Who was the orator?
Pupil: On January 8, 1853. Stephen A. Douglas was the orator. He paid a glowing tribute to the sculptor.
Pupil: He said that the statue was the work of an inborn genius, which was stirred up by the spirit of liberty.

Picture

Teacher: The exact words of Stephen A. Douglas are worth remembering. Who will read them?
Pupil reads paragraph from reader.
"This statue," he said, "is the work of a man exalted by his enthusiasm for the glorious deeds of a great hero and statesman. It is the work of a young and untaught American. He never studied or copied. He never saw an equestrian statue, not even a model. It is the work of an inborn genius, aroused to energy by the triumphant spirit of liberty which throbs in the great heart of our continent."

Picture

Teacher: On page 447, there are questions for you to think about for our reading period tomorrow. Will you read the assignment?
Pupil reads the following: To think about, discuss, and do.
1. Why is the work accomplished by Clark Mills remarkable?
2. How did he honor his hero? Tell about the making of the Jackson statue. Why are statues of famous men and women erected?
3. How did Mills feel as the statue was being unveiled?
4. What difficulties did Mills overcome in order to become a sculptor?
5. Clark Mills cast the statue of Freedom which is on the top of the Capitol in Washington. The model was designed by Crawford. Find a picture of this statue and show it to the class.

Teacher: Some of these points we have talked about today are very important and we will use them tomorrow.
If you are very much interested in the story of Clark Mills, you will find in your reader the list of books which you will enjoy reading. You will find some of the material in the bookcase. I know that the Librarian will be happy to lend us a few books if some of the boys and girls go to the library after school today.

Picture

Teacher: You all seem to have enjoyed this little biography of a man who labored to achieve a noble work.
Pupil: I never knew anything about Clark Mills and I have been to Washington many times, and I have never noticed this statue. I am going to ask my father to take me over soon, so I can see it.

Picture

Teacher: Clark Mills stepped forward before that vast audience. The President, the Cabinet members and thousands of people were there. The artist at first did not speak. He slowly raised his hand—those magic hands, now burned and calloused. Tears rolled down his cheeks as he extended those wonderful hands toward the veiled statue. I am sure the people understood what Clark Mills meant to tell them. The veil was lifted and Clark Mills' work—his Andrew Jackson—spoke and will forever tell men of courage, of love.

Picture

Teacher: I am going to read you a poem from your reader page —. Tomorrow I want you to tell me why you think I selected this poem to read to you. (Teacher reads a poem called "The Divine Revealment.")

Teacher: It has been a pleasure for me to have this reading period with you this morning. It is an inspiration to deal with our American boys and girls who are interested in our great American heroes.

Learning Situation

The Development of Proper Civic Attitudes

Seventh Grade
(First Year Junior High)

Teacher: This morning we are going to discuss civic attitudes. Can you tell me what I mean by the word civic? What do you study in Civics?

Pupil: We study about our city, town, or where we live.

Teacher: Is there anything else you study in Civics?

Pupil: We learn about the government of the whole country.

Teacher: Can anyone add to this statement?

Pupil: Yes, I think John did not say anything about the state.

Picture

Teacher: Have you learned about the relationship of people to one another? What have you studied about the home?

Pupil: We learned that it was the ladies' duty to keep and manage the household.

Teacher: You then learned the duty of the mother and father; the father is dependent on the mother to superintend the home. Mother could not buy what she needed unless the father secured the money. Duty implies dependence on one another. Do you know what the word interdependence means?

Pupil: Children depend on their parents or others in the home, and parents depend on their children.

Teacher: Yes, we all depend on each other for many kinds of help.

Teacher: What does the word attitude mean?

Pupil: The way you look and act toward a thing.

Teacher: Civic attitude is the way of looking and acting toward other people in the home, city, state, nation, and in the world. Are we interested in people outside of the United States?
Pupil: Yes, we are interested in people all over the world.
Teacher: Very much so, and we are dependent on them also. We are ready to help everyone who needs assistance.

Picture

Teacher: As a little boy or girl in the home you learn the very first thing about your duty toward your mother and father. What makes an ideal home?
Pupil: Obedience to your parents.
Teacher: Obedience is one thing but there is also something else important.
Pupil: Be ready to do something for them at all times and do it cheerfully.
Teacher: You would volunteer to help them. If your mother asked you to go to the store for her, why would you go?
Pupil: I would want to help my mother and it would be a pleasure to go.
Teacher: Why would it be a pleasure?
Pupil: Because it would give me an opportunity to do something for my mother.
Pupil: Because she gives me clothes, sends me to school, and helps me all the time.
Teacher: That is all very true, but I think there is another reason.
Pupil: Mothers love their children.
Teacher: Why would it be a pleasure then for you to go to the store for your mother?
Pupil: Because I love her.
Teacher: That is what makes a home perfectly happy. Would you live in a beautiful home with beautiful furniture, servants, etc., if you were given the opportunity and your mother were not there?
Pupil: I would take my mother with me or stay at home.
Teacher: I know you would do that and you would not be sorry for so acting. Love in our home is what makes it a happy home.

Picture

Teacher: Your mother and father probably give you an allowance. What do you do with your allowance?
Pupil: I am always glad to get mine.
Teacher: Suppose the allowance is fifty cents. What are you going to do with that money?
Pupil: Save it, for I might need it.
Teacher: Would you save all of it?
Pupil: No, I don't save mine.
Teacher: What would you do with it?
Pupil: If I want to go to the movies, I would take the necessary amount out and save the rest.
Teacher: What would you do, John?
Pupil: I would save some and spend some.

Teacher: Why?
Pupil: Because at Christmas time you want some money to get your mother and father something.
Teacher: That is the idea; spend some and save some.

Picture

Teacher: After school is over for the day you go out and play awhile. Suppose you are out playing dodge ball and you find that you are not winning the game. What are you going to do about it? Are you going to say the girls and boys are larger than you are and they have had more time to play and that they did not really win the game, but that they slipped something over on you?
Pupil: No, indeed; I would try to keep on doing my best to beat them.
Teacher: You are going to try to even the score, though the others are winning.
Pupil: The Navy-Notre Dame game will be played on Saturday.
Teacher: Is the Navy going on a trip and not bother about winning the game?
Pupil: Navy is going to try to win though she knows she will not.
Teacher: That is good sportsmanship; Saturday will tell who is going to win. Perhaps Navy will surprise you.

Picture

Teacher: On your way home from school you see someone out in the back of the school chopping down a tree. I do not know What his idea could be, but he would like to see if he could chop me one down. What would you do?
Pupil: I would first find out why he is cutting the tree. If he answers that he is doing it for fun, I would say that he should let the poor thing live.
Teacher: Suppose the boy answered, "Why let it live; I do not have much chance of living in the city." What will you say?
Pupil: "Do unto others as they do unto you."
Teacher: If this boy refuses to stop chopping down the tree which belongs to the city, what are you going to do about it?
Pupil: Report his wrong act to the man in charge of the park.
Teacher: Let someone else persuade the boy not to destroy trees. You feel that someone who has authority could use better arguments to show the boy how wrong is his conduct.

Picture

Teacher: While you are passing through the park you see a bench. You want to roast some potatoes and there is no wood around, that bench would make fire wood. Are you going to chop the bench?
Pupil: No, because it belongs to the city.
Teacher: It is public property. Are you going to take your knife and carve, "This day Jennie and Mary had a bonfire?" You would go back there and see the writing a few years later. Why wouldn't you do it?

Pupil: Because a cop or policeman would have you arrested.
Teacher: Is that the only reason?
Pupil: Because the bench is city property.
Teacher: Do you have any other particular reason?
Pupil: Because it is not your property but it belongs to someone else.
Teacher: Then you want to take care of it as if it were your own. Should you take better care of it because it belongs to the park?
Pupil: Yes; the reason is because we should take care of our own property and also of the property of others and of public property.

Picture

Teacher: Have you a book?
Pupil: Yes. We have them in our desks.
Teacher: Will you get one out please?
Teacher: I think Mary values this book. Do you mind if I look inside?
Teacher: See the inside. What happens if a book is left out in the rain?
Pupil: The water would probably run and take the name off the book.
Teacher: Has this book ever been used before?
Pupil: I do not know who had it, but it was used last year.
Pupil: We use that book every day in our work.
Teacher: If you carried it to school this morning without a cover you would not find it in this condition. What makes you glad to have a book that is neat and clean?
Pupil: You want your things to be just as good as if they belonged to someone else.
Teacher: What is one of the marks of a good citizen?
Pupil: We know that we should take care of our own things and the property of others.

Picture

Teacher: You wanted to buy a football. Let's say a good one costs about $5.00 and you gave the man a $10.00 bill and he gave you change in $2.00 bills. Instead of giving you two two's and a one, he gave you three two's, what would you do?
Pupil: I would give him the other $1.00 back.
Teacher: That is a good civic attitude; honest dealing with other people is most important.

Picture

Teacher: One day, a man knocks at your door and asks for some money. He is rather well-dressed and looks very well. He most likely has not any work to do. What would you do?
Pupil: I would give him something to eat.
Teacher: Could you help him in any other way?
Pupil: I would give him ten cents and that would help him to buy something to eat.

Teacher: Ten cents will not buy much food. What can you get for ten cents?

Pupil: Loaf of bread, cheese, crackers, etc.

Pupil: Do you think you can get all that for ten cents? Suppose he does buy a loaf of bread and they have it that night. What about tomorrow?

Pupil: Maybe you could tell some organization or employment agency.

Teacher: Why would you want to send him there?

Pupil: Because they would help him. If he has a wife and children they would give him a slip and he could go to the grocery and get some food.

Teacher: If he works around the house that would help him more than one dime because he will get paid for the work.

Teacher: The organization will pay him and that is a better idea than giving him your dime. Men you see around the streets here do not want just a dime. What they want is work and if you try in any way to help them, give it to them in that way.

Picture

Teacher: He would not sell his rights. He would not accept money to do something he knew was not right. Suppose a man would offer $25.00 to another person if he would take a car away from his neighbor's home and drive it down in the woods so that the first man could steal it, would he be doing right?

Pupil: No.

Teacher: You would consider it a crime?

Pupil: Yes, because stealing is a crime.

Teacher: If he would accept $25.00 to vote for another man would that be right?

Pupil: No, that is very wrong, and no one would respect you.

Picture

Teacher: I spoke to you just a minute ago about a good citizen. What makes a good citizen?

Pupil: One who upholds the laws of the city, state, and country, and tries to keep other people from destroying public property.

Teacher: The first thing that you mentioned is that of upholding the law.

Pupil: A good citizen protects public property.

Teacher: Is there anything else a good citizen does?

Pupil: If we are voting for the Governor and someone gives a man $25.00 to vote for his candidate, he refuses to sell his vote.

Picture

Teacher: He has a right to vote and he is going to hold on to it. When did he get this right?

Pupil: At the beginning of the Government.

Teacher: When will Eugene be eligible to vote?
Pupil: At the age of twenty-one.

Picture

Teacher: Over in England there is a king and also a Prince of Wales. Who is the Prince of Wales?
Pupil: He is the son of the king.
Teacher: Suppose the Prince of Wales was a man who cheated and accepted bribes, do you suppose you would like him for your king?
Pupil: No.
Teacher: You accept great chances when you say his father is a king; therefore, the son is going to be a king. Couldn't the father be a good king and the son a bad king?
Pupil: Yes, that could easily happen.

Picture

Teacher: Is it possible for a boy in this class to be a Governor?
Pupil: Yes.
Teacher: Could John be Governor?
Pupil: Yes.
Teacher: What about you, Joseph.
Pupil: I don't expect to, but I could be Governor.
Teacher: Is it possible for a girl to become President?
Pupil: If people nominated her.

Picture

Teacher: Do we have any women holding high positions in America?
Pupil: We have a lady in the Senate.
Pupil: Senator Morrow died suddenly and Mrs. Morrow was asked to take his place.
Pupil: Mrs. Morrow is not going to accept. There is another Senator who died recently and his wife is going to take her husband's place.
Teacher: What do you call the privilege you have to become Governor?
Pupil: Citizenship.
Teacher: Have you all the same chance?
Pupil: Everyone has equal rights in America.

Picture

Teacher: You have equal rights in the Government. A good citizen is supposed to uphold the law. Suppose he is driving along, speeding in a new car. It has been run 500 miles. It is the first time he can begin to go a little fast and he is on a boulevard with no one around. What kind of a temptation presents itself?
Pupil: He wants to speed.
Teacher: Yes. Suppose he does and after a while he looks in the mirror and sees a cop. What should he do?
Pupil: He should stop if he sees him, but most likely he will try to get away.

Teacher: Would a good citizen do that? Why should we not want him to speed?

Pupil: Because he goes around and around the curves and will crash into another car.

Teacher: It is unfair to someone else on the road. We have equal rights and he has no greater right than the man on the other side. (Teacher makes curve on blackboard).

Teacher: Show on the blackboard how he should go around the curve. Probably he is going fast; he would be afraid of going off and goes right in the middle.

Teacher: An X marks the spot where the body lies. That is why we should not speed; not because the road is not a good road; not because we do not want people to have pleasure. Suppose I went out to the pleasure park and went to the Mountain Speedway. Do they arrest people for going fast out there?

Pupil: No.

Teacher: Why?

Pupil: Because no one is coming the other way to bump into you and hurt you.

Teacher: That is why we have speed laws. Besides upholding the law, we protect human life. Do you think we should have them?

Pupil: All people should have the benefit of protection.

Picture

Teacher: Yes. In order to carry out our obligation of having equal rights we must all do our part. We cannot say that we are going to do as we like and let other people obey the law.

Teacher: For your assignment, I would like you to write a paragraph in which you describe the important points we have discussed this morning. Be prepared to give a floor talk.

I think you could find some examples of citizens of Baltimore who are displaying good civic attitudes if you watch the daily papers. See who can bring in a good news item for our conference tomorrow.

Learning Situation

Problem Solving in Geography

Seventh Grade

(First Year Junior High)

Problem: Why have the Balkans been called the "Whirlpool of Europe"? (This problem was written on the board.)

Teacher: Will someone read the question I have written on the board?

Pupil: Why have the Balkans been called the "Whirlpool of Europe"?

Teacher: What is the first thought that comes to your mind as you read the question?

Pupil: What is meant by the word, "Whirlpool"?
Pupil: Two bodies of water meet and go around rapidly. If people are caught in a whirlpool they are killed.
Teacher: What happens to the bodies on the surface?
Pupil: They are sucked in and drowned.
Teacher: Yes, some are sucked in, and others are thrown out. What relation can that have to a country? What might the whirlpool draw in?
Pupil: It would draw people.
Teacher: Yes, it would draw people, and people are different in many ways. How would they differ?
Pupil: In customs and social distinctions.
Teacher: Splendid! Now, something else.
Pupil: There would be different nations or races.
Teacher: And in what would these differ?
Pupil: In languages.
Teacher: Yes, and something else, too.
Pupil: Religion.

(The list appears on the board as follows:)

1. People
2. Customs—social distinctions
3. Races or nations
4. Languages
5. Religions

Picture

Teacher: That is a very fine list you have given me. We could revise it, but we won't do that right now. Let us get back to the whirlpool. We have come to the conclusion that the Balkan Peninsula is a part of Europe drawing in many people, having different customs, languages and religions. What would that cause?
Pupil: It might mean trouble and a lot of wars.
Teacher: Yes, you would expect to find great differences of opinion. Before we could begin to solve our problem we should know at least one geographic fact about the Balkans.
Pupil: Location.
Teacher: Someone who is near the globe or map, please point out the Balkan States.
Teacher: You will find a map that will help you on page 268. (The pupils found the Balkans in their texts and then one went to the map and pointed it out to the class.)
Teacher: What is the natural northern boundary?
Pupil: The Danube River.
Teacher: Looking at your maps, who can tell us about the surface of the Balkans?

(The pupils consulted regional maps.)

Pupil: It is a mountainous region.
Teacher: How many valleys in that region?
Pupil: There are very few in comparison with the mountains.
Teacher: Are the valleys regularly connected? Do they lead anywhere?
Pupil: No, the valleys don't seem to have any direct way of connecting.

Teacher: Who will summarize what we have noticed about the surface of the Peninsula?
Teacher: Is there any relation between the surface and our problem?
Pupil: The mountainous surface of the Balkans represents a whirlpool.
Teacher: Well, I haven't thought of that exactly. Suppose we leave the question open for awhile.

Picture

Teacher: Let us consider what countries we are going to include. Find the Balkan Peninsula, the Danube River, and all the countries that are south of it.
Pupil: Bulgaria, Yugoslavia, Albania, Greece, and Turkey in Europe.
(The pupils studied the names for a few minutes.)
(Using the large map showing Europe, part of Asia, and part of Africa, the teacher pointed to the Balkans and asked how different races might be coming towards them.)
Pupil: From Asia they would come by way of Turkey, across the Bosporus Strait.
Pupil: They would cross the Mediterranean Sea.
Teacher: Suppose you think of Africa for a minute.
Pupil: They would travel by water along the Nile River to the Mediterranean Sea.
Teacher: If they went directly they would be in Asia. It is not fertile in Turkey. Therefore, they would say, "We have heard of a great nation not far away." What country is that?
Pupil: Greece
Teacher: Yes, Greece has always been a magnet to the people of Africa. The Balkans are in a central position to Asia and Africa. Why haven't the people come from the north to the Balkan territory?
Teacher: They could come, but most of the people, however, have come from the south and east. Barriers have protected them. The map on page 310 will help you to fill out, "Effect on Surface."

Picture

(The teacher put the following outline on the board):
Effect on Surface
Effect on Position
a. From Asia via Bosporus Strait
b. From Africa via Nile River
Effect of Climate

Teacher: How can you tell where Yugoslavia ends and Bulgaria begins?
Pupil: By the red lines.
Teacher: All those five countries are in this little space. Suppose it were an open plain with people living at different places, what would they do?
Pupil: They would farm.

Teacher: How would they become united?
Pupil: They would visit each other and become one nation.
Teacher: Why have not the people of Bulgaria made visits over to Yugoslavia, Albania, etc.?
Pupil: Because the mountains stopped them. In the early days they fought against each other and used the mountains for defense.
Teacher: Yes, and now these mountains serve as barriers.

Picture

Teacher: How many railroads through that section?
Pupil: One; the transportation must be poor.
Teacher: What happens if you are in a mountainous country where there are level valleys?
Pupil: These mountains are difficult to cross.
Teacher: Yes, but what about the valleys?
Pupil: If the valleys ran together they could be united, but they just go a little way and stop.
Teacher: Do we all grasp the meaning of this statement? What do we use as a means of transportation?
Pupil: Water. There are few rivers in the Balkan territory.
Teacher: What kind of rivers are there?
Pupil: They are in the mountains; crooked and hard to travel on.
Teacher: Yes, they are swift and not good for navigation.

Picture

Teacher: Now, what did we use in this lesson?
(The teacher put list on the board.)
Physical map of Europe
Political map of Europe
Political-physical map of Europe
Map of the world
Globe
Text Book
Dictionary
Pictures
Teacher: Are you satisfied that we know the answer to the problem? Turn to page 330. What do you suppose "Serb-Croat-Slovene" means?
Step up to the map and see what it is called.
Pupil: The Serb-Croat-Slovene Kingdom.
Teacher: Read the first paragraph to yourselves and tell me why it is called that?
Pupil: Because the people speak different languages.
Teacher: Why?
Pupil: They are made up of parts of other countries.

Picture

Teacher: Things were changed after the World War. We see there are three different races in Yugoslavia. On the next page, there is a hint about the next country.

Pupil: "Greece: A small but interesting country." It was an important ancient country.
Teacher: On the next page there is another title.
Pupil: "Bulgaria: A country of many contrasts."
Teacher: What does the word "Contrasts" mean?
Pupil: It means a different light on things,—different ideas about government and other things.
Teacher: Yes; and the next country.
Pupil: "Albania: A mountain country."
Teacher: And the last one.
Pupil: "The Republic of Turkey."

(The teacher put these names on the board and later on in the lesson put beside each one a fact read by the pupil from the text. The finished list appeared as follows):

Bulgaria—contrasts
Yugoslavia—races
Albania—mountains
Greece—interesting and small
Turkey—(in Europe) republic

Picture

Teacher: Has Bulgaria been called by any other name?
Pupil: One of the products for which Bulgaria is widely known is attar of roses, made from rose petals.
Teacher: Now, besides knowing something about the surface of a country, and where it is, there is something else we must consider.
Pupil: Climate.
Teacher: From the position and surface, do you think it would have an even or varied climate?
Pupil: It would have a warm climate because it is near the sea and that keeps it warm.
Pupil: Yes, if it were a plain that would be the case.
Pupil: The mountains cause different temperatures.
Teacher: That is right. Now, let us summarize.
Pupil: Our problem was: Why have the Balkans been called the "Whirlpool of Europe"?
Pupil: We made the outline:

1. Surface
    a. Mountains difficult to cross
    b. Valleys irregular
    c. Swift streams
2. Position
    a. From Asia via Bosporus Strait
    b. From Africa via Nile River
3. Climate
    a. Varied

Pupil: We named five countries: Bulgaria, Yugoslavia, Albania, Greece and Turkey in Europe. There are at least seven races in these five countries made up of people of different customs, races, languages, and religions.
Pupil: The Balkan region has been called the "Whirlpool of Europe" because into the territory has been drawn almost every race, language of Europe and Asia at dif-

ferent times, and the people may be found scattered all over the region.

Pupil: Three facts cause these conditions: surface, position, and climate.

Assignment for the next period:

1. What geographic reasons can you give why the Balkans have remained undeveloped?
2. How may these conditions continue to influence the future of the states?
3. Why is the Balkan peninsula called "The Bridge between Asia and Europe"?
4. Why are the Balkans sometimes called "Savage Europe"?

I know you will use your maps and the pictures in finding the correct answers to these questions.

INDEX

Accomplishment Quotient
  Coy, Genevieve, 2
Analysis Chart, 10, 34, 58
Arithmetic, learning situation, 46, 52
Arithmetic, teaching of,
  Brueckner, Leo J., 9

Bamberger, Florence, quoted, 8
Barr, A. S., quoted, 3

Civics, learning situation, 56-62
Criterion of pupil progress, 11, 38, 39

Films,
  experimental, 15, 17, 19, 21, 23, 27
  practice, 16, 18, 20, 22, 24, 26

Geography, learning situation, 62-67
Groups, selection of, 6

Instruction Sheet for Experiment, 5

Rating devices
  Knudsen, Chas. W. and Stephens, Stella, 1
  Almy, H. C. and Sorenson, Herbert, 2
  Torgerson, T. L., 2
Reading, learning situation, 52-56
Rotation technique, explanation of, 6

Silent Motion Picture, 6, 7, 8
Skill in Teaching, measurement of, 11
Steps in Experimental Procedure, 7, 32
Supervision, measurement of
  Crabbs, Lelah Mae, 2
Supervision, Scientific
  Barr, A. S., 1
Supervisory techniques, reliability of, 2
Supervisory techniques, validity of, 2
Supervisory techniques, relative effectiveness of, 1
Supervisors, training of, 43

Teacher Selection
  Tiegs, Ernest W., 2
Teacher Success,
  Corey, Stephen M., 2
Teaching Learning Act, factors of, 9

Variability, 33

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